------- Forwarded message follows -------
Date sent: Tue, 30 Mar 2004 07:50:48 -1000
To: <jharrigan@eha.health.state.hi.us>
From: Carl Berg <cberg@pixi.com
Subject: 303d Comments
Copies to: hanaleiriver@hawaiian.net

Aloha June,

Here are some last minute data and comments on the 303d list proposed.

I have attached the latest version of the enterococcus data collected weekly by myself or Carrie Johnson, my trained staff field tech,for the EPA grant(no volunteers).

The <10 data is transformed to =5 on Sheet 2. The geometric means are

presented. Of note are the geometric means for the stream estuaries:
Waipa = 789.6 Waioli = 764.4 Waikoko = 1079.7

None of these had transformed data because the values are always high.

Nutrient data also exceeds standards.

I believe that these stream estuaries should be listed for both turbidity and enterococci based on numeric assessment. All three should be given a high priority since the values far exceed standards, since the estuaries are used as recreational waters by children, and since they empty onto the beaches of Hanalei Bay.

The few values we have for Waipa stream up above the estuary also far

exceed standards for enterococcus, supporting the listing of Waipa estuary

Hanalei Bay Pavilion station and Hanalei Bay Pinetrees station should also be listed for turbidity. Are these estuaries, embayments, or coastal? I believe that I sent to you the turbidity data collected by our staff as part of the EPA grant. I will send it again.

Thank you for great efforts in getting everything listed.

Aloha, Carl

Dr. Carl J. Berg, Jr.
Chief Scientist, Hanalei Watershed Hui
P. 0. Box 1285, Hanalei, HI 96714
808 639-2968 cberg@pixi.com

To the environmental Planning Office

Hawaii State Dept. of Health

919 Ala Moana Blvd. Rm 3 12

att. Bmatsunaga@eha.health.statehi.gov.

The Hamakua Soil and Conservation District would like to comment on the 2004 Listing & Delisting Criteria for Hawaii state Surface Waters Compiled under Clean Water Act 303D October ! 2003

- Sampling methods call for two stations to be set up on each separate stream. One station is to be upper on the stream corridor the other is to be lower closer to the outlet. (11-54(l)(a) for streams, there must be at least two stations per stream (upper and lower) and at least five (5) samples per station. The data of this report only cites one station per stream.
- Alenaio Stream is not a blue line stream, a small portion of the stream flows for less than a mile this stream is a good candidate for a Use Attainability Analysis U.A.A. for two reasons lack of flow,ephremeral stream and a stream that may be polluted by background or naturally occurring pollutants
- Waikea Stream is not a blue line stream, no portion of the stream flows except during times of heavy rainfall or storms. This stream is a good candidate for a Use Attainability Analysis U.A.A. for two reasons lack of flow, ephemeral stream and a stream that may be polluted by background or naturally occurring pollutants.
- Future Monitoring is mentioned along with the use of a U.A.A. Use Attainability analysis. It is incumbent upon the State of Hawaii Department of Health to follow the Federal Water Quality Regulation Part 131 Sec.131.10 (g) States may remove a designated use which is not an existing use, as defined in sec. 131.3, or establish sub-categories of a use if the State can demonstrate that attaining the designated use is not feasible because: (1) Naturally occuring pollutant concentrations prevent the attainment of the use; or (2) Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharge without violating State water conservation requirements to enable uses to be met,
- The Commission on Water Resource Management staff submital Feb 18 2004 is recommending that a status of Pristine stream be placed on four streans on the North Hilo and Hamakua coast. These streams for the following reasons should be subject to a Use Attainability Analysis.

1. Kaawalii stream is an ephremeral stream and is subject to seasonal flooding along with naturally occuring pollutant loads that would not meet water quality standards unless the natural loading were subtracted.
2. Kaiwilahilahi stream is only perenial in the lower reaches, it becomes ephremeral at the lower reaches of the conservation district at the falls. The stream is severly polluted part of the year in the urban district starting at five (5) dollar pond below Papaaloa subdivision due to infiltration of sewage from the cesspools. THE HSDOH in years past have posted the lower waterway.
3. Hakalau stream is.subject to seasonal flooding along with naturally occurring pollutant loads that would not meet water quality standards unless the natural loading were subtracted.
4. Honolii Stream is subject to seasonal flooding along with naturally occurring pollutant loads that would not meet water quality standards unless the natural loading were subtracted.

Respectively Submitted

Thomas C. Young
Member Hamakua soil and water Conservation District
PO box 101
Papaaloa, Hawaii 96780-0101

LINDA LINGLE
Governor

SANDRA LEE KUNIMOTO
Chairperson, Board of Agriculture

DIANE LEY
Deputy to the Chairperson

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 South King Street
Honolulu, Hawaii 96814-2512

March 30, 2004

Environmental Planning Office
Department of Health
919 Ala Moana Blvd., Room 312
Honolulu. Hawaii 96814

RE: DRAFT REPORT ON HAWAII'S 2004 LIST OF IMPAIRED WATERBODIES

Thank you for this opportunity to comment on the Draft Report on Hawaii's 2004 List of Impaired Waterbodies. The Hawaii Department of Agriculture offers the following concerns of the department and as they relate to the agricultural, livestock and aquaculture industries.

The proposed update of the impaired water bodies list is part of the Hawaii Department of Health's (DOH) efforts to address the federal Clean Water Act. Other relevant components associated with this document are our state's previously adopted Water Quality Standards, the Total Maximum Daily Loads (TMDLs) currently being developed and measurements for habitat and biotic stream integrity. The DOH's goal is clean water and the restoration of the natural environment. While these are worthy goals, the methods chosen by the Department to achieve these goals must be accurate in their ability to assess impairment by human causes. If, for example, natural conditions violate the water quality standards or inadequate data collection indicates impairment, our State list will eventually include practically every water body in the islands. We are bewildered by the potential impact of this possibility and question whether other states are using similar standards and methodology to comply with the federal requirements.

The DOA, continues to have strong concerns that the DOH has not adequately considered the impact that its actions will not result in undue or unbearable economic hardship for the agricultural sector and in fact, the entire state economy. The DOH has failed to adequately account for the effect on land use, economic development and impacts on private land use. DOH may well be creating restrictions on the use of private lands and the water necessary for agricultural production.

As we understand the federal requirements, one of the ramifications of listing water bodies is the development of TMDLs. Development and implementation of TMDLs will be costly for the state and the private sector, particularly the agriculture industry. Unknown and unproven methods of identifying sources of "non-point source pollution" may result in pollution budgets that are unfeasible and unfair. We are also extremely concerned with the possibility of severe limitations on or the elimination of the use of agricultural water from surface streams. If farmers are forced to give up stream sources of water they may need to develop irrigation wells, which will tax aquifers and domestic sources. This may result in situations similar to many western states in which water shortage conflicts occur as surface stream flows are eliminated and water directly enters the ocean without the ability to recharge aquifers. This will defeat the purpose of the Water Quality Standards to preserve water quality because the resulting actions will recycle the aquifers with pumped irrigation water and limiting mixing of fresh water into the aquifer. The DOA made these points previously on August 9, 1999 in reference to the Proposed Amendments to Hawaii Administrative Rules Title 11, Chapter 54, Water Quality Standards, Docket No. R-8-99 and they are still relevant.

The DOA is concerned that the DOH's responses as presented in the document entitled, Public Comment Response Summary, November 2002, are dismissive of concerns and suggestions raised. These include the following points:

- How does the DOH account for the fact that Hawaii's environment and soils are naturally erosion prone?
- The DOH claims that high costs prohibit efforts to utilize science based, long-term data sampling.
- Is it fair to penalize businesses, communities and neighborhoods – let alone the visitor sector with the stigma and economic consequences of classifying a stream as impaired
  when it may be naturally high in turbidly and soil content?

These listings have the potential for tremendous impact on the agricultural sector and our communities in general; it is ill advised for the DOH to focus solely on accomplishing federal listing requirements. This process is only one step within a bigger picture that should accurately pinpoint those waterbodies which are indeed impaired and which can be realistically restored. The DOH as a state agency has a responsibility to be realistic and balanced in its approach to this matter and we welcome the opportunity to work with the agency toward a more scientifically defensible process.

Sincerely,

Sandra Lee Kunimoto
Chairperson, Board of Agriculture

HARC

HAWAII AGRICULTURE RESEARCH CENTER

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March 30, 2004

State of Hawaii Department of Health
Manager, Environmental Planning Office
919 Ala Moana Boulevard, Third Floor
Honolulu, HI 96314

Re: **Draft Report on Hawaii's 2004 List** of **Impaired Water Bodies**

Dear Ms. Harrigan:

The Hawaii Agriculture Research Center (HARC) offers the following comments on the draft repor on Hawaii's "2004 List of Impaired Waters in Hawaii" prepared by the Department of Health Environmental Planning Office DOH-EPO) under the Clean Water Act Section 303(d).

HARC has reviewed the above document and, as noted in comments submitted in previous years, continues to have very serious concerns about the method by which waterbodies, particularly streams, are being listed as impaired and the long-term ramifications to the State of those listings.

- **Is the public comment process merely a formality?**
  Since the deadline for submission of public comments to DOH-EPO on the proposed 303(d) list is March 30, 2004 and the Stare's deadline to submit its list to EPA is the next day**,** April 1, 2004, HARC wonders how public comments can be meaningfully considered and acted upon by DOH prior to the EPA deadline. HARC would also like to receive responsive comments addressing its long-standing concerns.

- **The use of limited and unreliable data**
  According to the list provided for public comment, more than half of the streams currently included on the 303(d) list are listed based solely on "visual assessments" of water quality with little or no actual water quality data available to support those listings. The use of third party review of photographs to assess water quality is scientifically unsound and unacceptable in these determinations. DOH itself is distrustful of this method of assessment and states that it will not use it for future listings. However in the meantime, the State is in the process of developing TMDLs for nine streams that are listed based on visual assessments only, and an additional four streams for which only very limited actual. water quality monitoring data is

available. In addition it appears that DOH is not following its own criteria for listing although it is difficult to determine from the limited information supplied in the document.

- **State water quality standards cannot be met even under natural conditions**
  As an example, natural levels of turbidity regularly exceed our state standards. Other states account for their background levels in their standards. Ours seem to be closely related to our drinking water standards. Is there adequate justification for setting our standards so impossibly high? What are we trying to accomplish with this goal? Can we realistically lower turbidity even in our streams stemming from highly erodible, steeply sloped areas?

- **Scientifically questionable habitat and biotic assessment protocol is still being used**
  The HSBP currently being used in assessing stream health was never meant to be used within the regulatory context as it is not scientifically rigorous and was rejected by the Water Quality Standards Technical Advisory Group (WQS-TAG)which assisted DOH-EPO in developing the most recent proposed revisions to the State WQS and by the Director of Health Dr. Bruce Anderson after thorough review and consultation with reknown field biologists.

The state has limited resources and should use them to list truly impaired water-bodies and develop realistic TMDLs so that we can have a real impact on restoring truly polluted waters.

Thank you for the opportunity to provide these comments. We look forward to your response.

Sincerely,

Janet Ashman
Environmental Specialist

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T YOUNG
CHAIRPERSCJN

MEREDITH J CHING
CLAYTON W DEIA CRUZ
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ERNEST Y W LAU
OEPVTY DIRECTOR

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

COMMISSION ON WATER RESOURCE MANAGEMENT

P 0 BOX621
HONOLULU, HAWAII 96609

March 29, 2004

Manager, Environmental Planning Office
Department of Health
919 Ala Moana Boulevard, 3rd Floor
Honolulu, Hawaii 96814

We appreciate the opportunity to review and comment on the Draft 2004 List of Impaired Waters in Hawaii.

We offer the following comments regarding specific streams listed on Table 5, Page 25.

Aamakao Stream: The Commission will be conducting field monitoring of Aamakao Stream in 2004 for streamflow and aquatic life. Any information your office can provide us regarding water quality of Aamakao Stream will be appreciated. Water quality data is one of many parameters considered by the Commission when setting instream flow standards.

Hakalau Stream and Honolii Stream: Your office listed these streams for nutrient and turbidity pollutants. The Commission is considering listing streams for their high natural quality based partly on information in the Hawaii Stream Assessment. Hakalau and Honolii Streams, which appear on your Table 5 List of Impaired Waters, were considered for the Commission's high natural quality listing. We would like to look further into this seemingly contradictory views of Hakalau and Honolii Streams.

In addition to the above comments, we believe the TMDL program and our stream protection and management program's efforts to set instream flow standards should be better coordinated. We recommend scheduling a meeting at an early date, to review each program's goals, objectives, methods and priorities. We further recommend that all new TMDL stream listings be held in abeyance until we have had a chance to meet and review both programs. Hopefully, such a meeting will improve both the TMDL and instream flow programs which in turn become an important component of the Hawaii Water Quality Plan pursuant to Hawaii Revised Statutes §174C-68.

If you have any questions please call me at 587-0214.

Sincerely,

ERNEST Y.W. LAU
Deputy Director

c. EPA Region IX, PICO
EPA Region IX, Water Division
DOH Clean Water Branch

ALEXANDER & BALDWIN, INC.

March 30, 2004

State of Hawaii Department of Health
Environmental Planning Office
Attention: Ms. June Harrigan, Ph.D
919 Ala Moana Boulevard, Third Floor
Honolulu, HI 968 14

Subject: **Draft Report on Hawaii's 2004 List of Impaired Water Bodies**

Dear Ms. Harrigan:

Alexander and Baldwin, Inc. (A&B) is pleased to provide comments regarding the draft report titled "2004 List of Impaired Waters in Hawaii" (also known as the 303(d) list of impaired waters) prepared by the Department of Health Environmental Planning office (DOH-EPO). Our major comments and concerns with the draft 303(d) list are summarized below. A more detailed analysis of these concerns, along with comment related to specific water bodies listed, are provided in the subsequent sections.

Summary of Major Concerns

Objectives and Impacts of the Listing Process: The draft report lists 70 streams and 174 coastal segments in the State as "impaired waters", adding 11 streams and 35 coastal stations to the 2002 list of impaired waters. Water bodies are to be included on the list when they do not meet State Water Quality Standards (WQS), and the State is required to develop Total Maximum Daily Loads (TMDLs) for all listed water bodies and pollutants. A significant number of these water bodies are listed based on very limited and, in some cases, unreliable data which may not be representative of actual water quality (see for example the discussion of visual assessments below). In Hawaii, the objective of the process appears to be to include as many water bodies as possible on the 303(d) list, in many cases based on very limited data, rather than to prioritize efforts to address water bodies where there is sufficient data to document actual water quality problems. As a result, the list provides an inaccurate representation of the status of water quality in the State, giving the impression that there are widespread water quality problems even though there is very limited data to support this view. The potential ramifications of the perception of poor water quality to the State's economic interests (e.g., tourism), not to mention the enormous costs of developing and implementing TMDL's for listed water bodies that may not actually be impaired, ought to be carefully considered in the development of listing criteria and in the allocation of resources towards future water quality monitoring.

Use of Visual Assessments to Support Listing: More than half of the streams currently included on the 303(d) list are listed based solely on "visual assessments" of water quality with little or no actual water quality data available to support those listings. Virtually all of these streams were originally included on the 1998 303(d) list based on an analysis by the Environmental Protection Agency of photographs taken during the assessments; EPA staff involved in the listing decision did not actually visit these streams. Recognizing the inherent limitations of basing listing decisions on a review of photographs, DOH-EPO states in the draft report that they "do not support future listing determinations based on photographic assessments only; however, delisting of previously listed waters will not occur until the 1isting/delisting criteria are met". These limitations are further highlighted by the numerous streams for which numerical water quality data collected since the listing decision refutes the previous visual assessments, including three streams for which visual assessments conducted in 2003 directly contradict the prior listing decisions A&B strongly urges a review of past listing decisions based on visual assessments and delisting of streams for which listing is not supported by other, more reliable water quality data. Failure to do so will result in the expenditure of enormous resources in developing and implementing TMDL's for water bodies that may not actually be impaired. The State is already in the process of developing TMDLs for nine streams that are listed based on visual assessments only, and an additional four streams for which only very limited actual water quality monitoring data is available.

Use of Hawaii Stream Bioassessment Protocol: A&B strongly objects to the continued use of the Hawaii Stream Bioassessment Protocol (HSBP) by DOH-EPO for the assessment of water quality in streams and in the development of "habitat and biotic criteria TMDL's" for streams already listed as impaired. The use of HSBP in the development of TMDL's in particular amounts to defacto adoption of HSBP as a water quality criteria. While we believe that HSBP has merit as a tool for scientific study of stream ecosystems, its shortcomings in assessing the health of streams statewide are well documented and were discussed at length by the Water Quality Standards Technical Advisory Group (WQS-TAG) which assisted DOH-EPO in developing the most recent proposed revisions to the State WQS and in which A&B participated; ultimately, these shortcomings led to a decision by the then Director of Health to reject HSBP as a water quality criteria. A&B strongly urges that DOH discontinue the use of HSBP for evaluating compliance with the WQS and for development of TMDL's.

Listing Criteria: A&B has serious concerns regarding listing criteria for waters under Listing Priority 2 which allows the use of data collected during the wet season to be used to show noncompliance with dry season water quality standards, and which allows listing of streams based on limited data which do not actually exceed any water quality standards. The existing listing criteria under Listing Priority 2 allow listing of waters which do not exceed water quality standards and should be revised.

Evaluation of Water Quality Data: While DOH has compiled a substantial amount of water quality data for use in evaluating waters for potential inclusion on the 303(d) list,

A&B is concerned that this mass of tabulated data, taken out of context, will and has led to listing decisions that do not reflect actual water quality data. This issue is of particular concern when making listing decisions based on very limited data sets (e.g., under Listing Priority 2). For example, some streams have been listed or are proposed for listing based in part on limited data collected during large storm events, when water quality is expected to exceed normal water quality standards (the Hawaii WQS contain numerical standards for large storm events – the "two percent of the time" and "ten percent of the time" standards" – because the normal WQS are expected to be exceeded during these storms). In fact, several streams are listed based on elevated turbidity (in most cases based solely on visual assessments) even though they are intermittent streams that flow only during large storms when the normal water quality criteria are not intended to apply. We also note that some streams have been proposed for listing based on water quality data collected immediately adjacent to a direct pollutant input and then taken as representative of the entire stream. A&B suggests that all water quality data used to make listing decisions should be reviewed within the proper context (e.g., recent rainfall, stream flow, siting of sample locations) to ensure that misleading or anomalous data are discarded, and that valid data are compared to the appropriate standards.

Water Quality Standard for Turbidity: Approximately 80 percent of the streams included on the proposed 303(d) list are listed either solely (25 streams) or partly (31 streams) due to reported impairment by turbidity; 28 of these are based on visual assessments only. The current "geometric mean" water quality standard for turbidity (2.0 NTU dry season/5.0 NTU wet season), which applies to all streams in the state, is as strict or stricter than the turbidity standard for drinking water and does not consider the normal background turbidity present in streams, particularly during storm events, irrespective of any inputs from human sources. As a result, many streams are currently listed as impaired, and many more will undoubtedly be listed as more data is collected, based on turbidity data that is wholly consistent with healthy Hawaiian streams (according to EPA, low turbidity streams and rivers – those typically located at the upper reaches of an undeveloped watershed – are those with turbidities less than 20 NTU -*four to ten times the Hawaii standard).* In comparison, many mainland states either do not have a turbidity standard at all or base their standard on background turbidity levels (typically establishing their WQS at 10 NTU *above background).* A&B believes strongly that a review and revision of the State WQS for turbidity is necessary in order to prevent the continued listing of streams for turbidity levels that exceed the current standard but are in fact not indicative of actual water quality impairment.

DOH Response to Comments: We note that the deadline for submission of public comments on the proposed 303(d) list to DOH-EPO is March 30,2004 while the State must submit its list to EPA by April 1, 2004. A&B is extremely concerned that the State will not have sufficient time to compile, review, and adequately respond to comments received on the proposed list prior to submitting it to EPA. DOH-EPO should be required to carefully consider and respond, on point, to all comments received, including making changes to the proposed list where warranted, before the document is submitted to EPA.

Specific Listing Decisions: A&B has specific concerns about several individual listing decisions, and these are outlined in more detail below. In particular, A&B does not believe that water quality data collected for Waipio Stream on Maui supports the proposed listing, or that data for Maliko Gulch on Maui supports the existing listing. A&B recommends that both of these streams be excluded from the list until sufficient, reliable water quality data has been collected to support a finding of impairment.

Detailed Comments

1. As noted above under "Objectives and Impacts of the Listing Process", a significant number of water bodies are included on the proposed 303(d) list based on very limited and, in some cases, unreliable data which may not be representative of actual water quality. Specifically:

- According to Table 5 of the draft report, 36 streams are listed based on visual assessments only. In all of these cases, there is insufficient numerical water quality data to support the listing, and in several cases numerical water quality data contradicts the listing and/or subsequent visual assessments conflict with the earlier assessments that formed the basis for listing. A&B strongly believes, as apparently does DOH-EPO, that photographs of visual assessments do not provide a reliable basis for listing streams as impaired.
- Priority 1 or 2a numerical data for six streams, as presented in Table la, shows no exceedances of water quality standards, contradicting the listing decisions for these streams.
- Five streams are listed based on Priority 1 or 2a "combined data" (i.e., data from the dry and wet seasons were combined and compared to the wet season standards because less than 10 samples were obtained during each season), while an additional 12 streams are listed based on Priority 2b data (three of these are also listed based on "combined data", indicating that less than five samples were obtained during each season). Data sets of this size can be highly skewed by a single large storm event and are not necessarily representative of water quality in the stream.
- Three streams (Kalauao, Uhelkawaawaa, and Waimea) were apparently listed based on Priority 3 data (i.e., five samples or less), as they are not listed in either Table la or Table 1b of the report.
- Eight streams listed as impaired are intermittent streams, meaning that their lower reaches are normally dry except during large storm events. Seven of these streams are listed for turbidity based on visual assessments only, and the remainder is listed for turbidity based on very limited numerical data. If these assessments reflect periods when there was flow in these streams, it is likely that they occurred during or shortly after storm events when higher than normal turbidity would be expected and is allowed by the WQS.

Whether by design or not, the listing process in Hawaii appears to be aimed at obtaining very limited amounts of data for as many streams as possible, thereby justifying their listing as impaired based on overly lenient listing criteria, rather than prioritizing efforts to address water bodies where there is sufficient data to document actual water quality

problems. This approach has led to a significant number of water bodies being listed as impaired with very little evidence to support the listing.

For each water body listed, DOH must develop and implement a TMDL designed to allow the water body to meet water quality standards. The TMDL must be developed "within a reasonable period of time" after EPA approval of the listing, leaving little time to collect additional water quality data prior to initiating the TMDL development process. A major expenditure of public resources is necessary just to develop the TMDL and its implementation plan; even more immense are the potential costs and other broad implications to all land users (including not only urban and agricultural users but also conservation uses) to implement these TMDLs. In light of this, it is imperative that listing decisions be well supported by reliable water quality data that clearly demonstrates impairment. Yet DOH-EPO is already in the process of developing TMDLs for nine streams listed as impaired solely based on visual assessments and several others that are listed based on extremely limited numerical data.

The objective of compiling the 303(d) list ought to be to identify water bodies that are not meeting water quality standards so that limited resources can be directed towards identifying causes of impairment and, where feasible, implementing actions to improve water quality. While continuing to expand the 303(d) list based on limited data will likely attract additional funding to the process by raising the perception of widespread water quality problems, in our view neither the current list nor the proposed list provides an accurate representation of true water quality in the State. Instead, the list has become a compilation of waters for which at least a suspicion of impairment can be minimally supported and for which enormous resources are being expended, and potentially wasted, on TMDL development.

It is important to note that the criteria for delisting water bodies are considerably more stringent than are the criteria for listing. Although water bodies can be listed based on visual assessments alone or on as few as five water quality samples, waters may not be delisted until "data show that the water quality standards are attained and the appropriate sample sizes or other information required under Listing Priority 1 are available" (per the 2004 Listing and Delisting Criteria).

A&B strongly recommends adoption of a more focused approach to the TMDL program, particularly the listing process, with the objective of collecting adequate data to clearly identify and address real water quality problems in the state.

2. As noted above, more than half of the streams currently included on the 303(d) list are listed based solely on "visual assessments" of water quality with little or no numerical water quality data available to support those listings. Virtually all of these streams were added based on EPA's revised review of Hawaii's 1998 303(d) list in the wake of the court decision in *Hihiwai Stream Restoration Coalition et al. v. Whitman,* in which the court determined that Hawaii needed to consider "all existing and readily available data" in determining whether a water body is impaired. EPA disapproved Hawaii's original

1998 303(d) list and concluded, based on its own analysis of photographic documentation from visual stream assessments previously conducted by DOH, that data and information that were existing and readily available at the time of Hawaii's 1998 listing submittal (including the visual assessments) were sufficient to support expansion of the list to include 92 newly listed water bodies; of these, 55 new water bodies were listed based on visual assessments.

While A&B recognizes the potential value of visual assessments in evaluating whether narrative water quality standards are being met, we do not believe that the assessments reviewed by EPA following *Hihiwai* provide a reliable basis for listing decisions for the following reasons:

- In many cases, the pre-1998 visual assessments do not meet the present-day listing criteria approved by EPA. Data sets for evaluation of narrative criteria must include at least three sampling events and represent conditions in both wet and dry seasons, and must be supported by adequate QA/QC procedures. According to EPA's "Revised Review of Hawaii's 1998 Section 303(d) Water Body List", its visual assessments were based on one to three ("usually one") visits to a limited number of sites on the water body, generally during dry weather conditions, "and therefore represents an incomplete evaluation".
- Visual assessments of two streams (Hakalau and Kaieie) conducted in 2002 "severely contradict" results of the visual assessments upon which their 1998 listing was based. Similarly, a 2003 visual assessment of Hanalei Stream concluded that water quality was high, contradicting the visual assessment that led to the 1998 listing for turbidity.
- As noted previously, there are several examples of streams for which numerical water quality data collected subsequent to the 1998 "visual assessment listing" does not support the listing.
- Visual assessments fail to account for the provisions of HAR Section 11-54-4(c), which provides that the narrative standard relating to "soil particles resulting from erosion on land" (typically a major contributor to observed turbidity) is deemed met when the land on which the erosion is occurring is being managed in accordance with soil conservation practices or when the discharge is receiving the best degree of treatment or control. To our knowledge, the visual assessments evaluated and considered by EPA contained no information that would allow a determination as to whether the requirements of Section 11-54-4(c) were being met at the time of the assessment. If these requirements are met, then observed water quality that might otherwise appear to violate the narrative turbidity standard does in fact comply with the standard and therefore cannot be used as a basis for listing as impaired. Therefore, any visual assessments that do not consider Section 11-54-4(c) should not be used as the basis for listing streams as impaired for turbidity (currently, 28 streams are so listed based on visual assessments only).

Per the "2004 Listing and Delisting Criteria for Hawaii Surface Waters Compiled Under Clean Water Act Section 303(d)" (October 2003), previously listed waters can be delisted if good cause is demonstrated based on the availability of newer and/or more accurate water quality data or discovery of past analytical flaws. A&B believes that these criteria

are met for those waters listed in 1998 based on visual assessments only, and strongly urges delisting of streams for which listing is not supported by other, more reliable water quality data. Failure to do so will result in the expenditure of enormous resources in developing and implementing TMDL's for water bodies that may not actually be impaired.

3. A&B and others, including the Department of Land and Natural Resources (DLNR) Aquatics Division, have in the past voiced strong opposition to the use of the Hawaii Stream Bioassessment Protocol (HSBP) as a measure of water quality in streams throughout the state. As DOH-EPO is fully aware of these concerns as a result of our past participation in the WQS-TAG, we will not repeat them here except to reiterate that HSBP provides for an unrealistic comparison of streams throughout the state to the most pristine and isolated streams in the state (so called "reference streams"). HSBP envisions stream habitat and an assemblage of biota that is comparable to that of reference streams regardless of differences in morphology, surrounding land uses, and stream modifications (including channelization for flood and erosion control), and characterizes as "impaired" streams which do not meet these unrealistic criteria. A more realistic measure of stream habitat and biota would take into consideration existing uses of the water body, as well as surrounding land uses, in determining the standard to which biological indicators should be compared. For this reason, the HSBP was not adopted into the State WQS during the most recent revision. In light of this, A&B strongly objects to the continued use of the Hawaii Stream Bioassessment Protocol (HSBP) by DOH-EPO for the assessment of water quality in streams, and especially in the development of "habitat and biotic criteria TMDL's" for streams already listed as impaired.

The use of HSBP in the development of TMDL's in particular amounts to *de facto* adoption of HSBP as a water quality criteria despite its recognized deficiencies in this application. To date, DOH has consistently incorporated "habitat and biotic TMDL's", based on the HSBP, into its TMDLs. A&B questions the motivation behind this use of HSBP, as it would appear use of this "artificial TMDL" could impede delisting of water bodies even after they meet all water quality standards for which they were listed. It should be noted that EPA does not require TMDLs to be prepared for streams identified as impaired through biological information unless the impairment is caused by one or more *pollutants*, in which case the *pollutants* causing the impairment must be identified and a TMDL established for the *pollutants.* Where biological impairment is determined to be caused by *pollution but not by pollutants* (including impairment caused by man-made alterations to the stream or riparian areas), a TMDL is not required (nor could one be prepared, since a TMDL is, by definition, water body and *pollutant* specific). "Biocriteria set the biological goal, or target, to which water quality can be managed, rather than the maximum allowable level of a pollutant *or other water quality condition* in a water body" (EPA Office of Water, Bioassessment and Biocriteria website); as such, there is no analogue to pollutant-specific TMDLs. The development of "TMDLs" for habitat impairment, particularly when based on a flawed metric, goes well beyond the scope of the TMDL program, and may well interfere with the authority of other agencies with regard to water use allocations. A&B therefore strongly urges that DOH discontinue

the use of HSBP for evaluating compliance with the WQS and especially for development of TMDL's.

4. Hawaii's numerical water quality standards include one standard for the dry season and another generally higher standard for the wet season; water bodies do not meet the standard if the geometric mean of the data exceeds the corresponding standard. To account for large storm events, two additional, much higher standards are established which are not to be exceeded more than ten percent or two percent of the time. Because it is usually impracticable to monitor water quality continuously, these standards were established to allow a statistically valid comparison with measured water quality data. Of course, the smaller the data set, the less statistically valid that data set becomes for comparison with water quality standards.

A&B believes that certain listing criteria outlined in the "2004 Listing and Delisting Criteria for Hawaii Surface Waters" are unreasonably lax, allowing the listing of water bodies that do not actually exceed any water quality standards. Specifically:

- Listing for impairment by conventional pollutants can be based on as few as five water quality samples (Listing Priority 2). A&B believes that data sets of this size do not provide a statistically valid basis for comparison with the water quality standards as they may be widely skewed by the inclusion of one or more samples collected during or soon after large storms. While a minimum sample size of five is consistent with a 1998 recommendation by EPA, EPA's recommendation was based not on whether such a small sample size would provide reliable data, but rather on the limited data then available for analysis and a concern that "use of a larger minimum sample size would result in exclusion of streams from consideration for listing". This is simply not a statistically valid justification for evaluation, and amounts to allowing streams to be listed based on poor quality data for no other reason than because that is all that is available. A&B has similar reservations with regard to the minimum sample size for Listing Priority 1 (minimum of ten samples from each season); however, we strongly believe that no fewer than that number of samples should be required for listing.
- For conventional pollutants, Listing Priority 2 allows sample data collected during wet and dry seasons to be combined where there is insufficient data to evaluate the wet and dry standards separately. Water bodies can be listed if (1) the geometric mean of the data (including wet season data) exceeds the dry season standard and a majority of dry season data exceed the dry season standard or (2) the geometric mean of the data exceeds both the wet and dry standards or (3) the majority of sample values in a smaller data set (five to nine samples) exceed the geometric mean criteria by a factor of two or more. In each of these cases, water bodies could conceivably be listed without the geometric mean of the wet or dry season data exceeding the corresponding wet or dry standard – that is, without an actual exceedance of the applicable water quality standard. The wet and dry season standards are separate and distinct standards. In order to determine whether a water quality standard is exceeded, wet season data should be compared to the wet season standard, dry season

data should be compared to the dry season standard, and a minimum sample size (at least ten samples) should be established for comparison to each standard.

- For comparison with the "ten percent of the time" and "two percent of the time" criteria, DOH requires a minimum of 100 and 500 samples, respectively, for Listing Priority 1 or 50 and 250 samples, respectively, for Listing Priority 2. These standards are intended to allow for exceedances of the "geometric mean" standards for relatively short periods of time due to large rainfall events, when larger pollutant concentrations in streams are unavoidable. Appropriately, the listing criteria require significant data sets for comparison with these standards in order to ensure a reliable assessment of the data. However, if one were to evaluate whether a stream was meeting the numerical water quality standard for a total suspended solids over the six month wet season, it could reach 50 mg/L ten percent of the time and 80 mg/L for two percent of the time but would have to meet the "geometric mean not to exceed" standard for the remaining 90 percent of the time. Although some statistical variance is allowed for by use of a geometric mean, it would seem that the size of the data set used to evaluate compliance with the standard which applies ninety per cent of the time should be comparable to the size of the data set required to evaluate compliance with the "ten percent of the time" and "two percent of the time" criteria. As such, a minimum sample size considerably larger than is specified in the listing criteria would appear to be appropriate. A single anomalously high data point (such as might be collected during a large storm) may so skew the geometric mean of a small data set as to suggest impairment even where the criteria applicable to storm events (i.e., the "ten percent of the time" and "two percent of the time" criteria) are never exceeded.

5. A&B is concerned that evaluation of the large mass of tabulated water quality data, when taken out of the context in which it was collected, can (and has) resulted in listing decisions that do not accurately reflect actual water quality in the stream. Rather than relying solely on "number crunching" to determine whether numerical standards are exceeded, DOH needs to carefully consider conditions in the stream at the time of sampling to determine whether or how a particular set of data should be considered in making listing decisions. Specific examples include:

- Several streams are listed as impaired based on elevated turbidity (in most cases based solely on visual assessments) even though they are intermittent streams that flow only during large storms when the normal water quality criteria are not intended to apply. These streams include Honokowai, Kahana, Kahoma, Maliko, and Ukumehame Streams on Maui and Aiea, Kaupuni, and Waiawa Streams on Oahu (basis: Hawaii Stream Assessment and personal observations). With the exception of Maliko Gulch, all of these streams are listed as impaired for turbidity based solely on visual assessments. Because flows in these streams are generally not present except during large storms, it is reasonable to expect elevated turbidity levels if an when they are sampled or otherwise assessed. In most cases, water quality data collected from these streams should therefore be compared to the appropriate storm event standards (i.e., the "ten percent of the time" and "two percent of the time" standards) to assess impairment.

- Maliko Gulch was listed as impaired for turbidity in 2002 based on a very limited data set comprised of seven samples taken during the wet season. Although the geometric mean of these seven samples exceeds the "not to exceed" standard, the samples were taken from two sample locations (Maliko Upper and Maliko Lower) within the stream during four sampling events; that is, the data represents stream conditions on four different occasions, not seven. While multiple sampling sites within a stream can provide useful information for assessing the extent of impairment within the stream, we believe that it is not reasonable to consider multiple sample locations sampled on the same date as separate data points for the purposes of comparison with the listing criteria. Taken to the extreme, this approach would allow one to meet the Listing Priority 1 criteria by taking ten field samples at different locations in a stream on a single day! On this basis, Maliko Gulch does not meet the criteria for listing under Listing Criteria 2 and should not have been listed.
- Waipio Stream on Maui is proposed for listing as impaired for turbidity based on five samples (four during the wet season and one during the dry season) collected within a 90-day period in 2001. The stream was proposed for listing under Listing Priority 2 because the majority of samples exceeded the geometric mean criteria by a factor of two or more. However, there are a number of problems with the Waipio Stream data. For the sample with highest turbidity, elevated turbidity resulted from heavy rains preceding the sample event, including one inch of rain on the day of the sample. In addition, the DOH sampling site for this stream is located immediately upstream of a bridge on Hana Highway. A drainage swale located at the bridge directs runoff from the roadway and adjacent steep slopes into the stream, and the accumulation of sediment and vegetative debris in the swale suggests that this runoff likely carries a significant sediment load. Moreover, examination of drainage at the site indicates that the sampling location is directly in the path of this discharge. While water quality sampling should undoubtedly be representative of the impact of various pollutant discharges such as this one on the receiving water, it is unreasonable to obtain samples *intended to be representative of the entire stream* at a point that is so clearly and directly impacted by a single discharge with no opportunity for suspended sediments to settle or disperse in the stream; one might as well sample directly from a discharge pipe in lieu of the receiving water. Data from this location, while convenient to collect, should not be used to assess impairment of Waipio Stream, and the stream should not proposed for listing on the basis of this data.

As described above, A&B has closely examined monitoring data associated with several streams proposed for inclusion on the 2004 303(d) list and strongly believes that there are valid reasons to consider not listing these streams. Obviously we do not have the resources to complete an analysis of all proposed listings to identify similar issues, however, we believe that there are likely other examples where a close examination of the data may warrant reconsideration of listing decisions, particularly where listings are based on small data sets. We strongly encourage DOH-EPO to undertake such an evaluation prior to finalizing its 2004 listing decisions.

6. As noted above, approximately 80 percent of the streams included on the proposed 303(d) list are listed either solely (25 streams) or partly (31 streams) due to reported impairment by turbidity; 28 of these are based on visual assessments only. The current "geometric mean" water quality standard for turbidity (2.0 NTU dry season/5.0 NTU wet season), which applies to all streams in the state, is as strict or stricter than the turbidity standard for drinking water and does not consider the normal background turbidity present in streams, particularly during storm events, irrespective of any inputs from human sources.

According to EPA guidance for compliance with turbidity standards in drinking water systems, *low turbidity* streams and rivers are those with turbidity of less than 20 NTU and are usually located at the upper reaches of undeveloped watersheds with little or no development or agricultural activity, heavy natural vegetation along stream banks, and little stream bank erosion. The range of turbidity typical of waters in this pristine state is four to ten times higher than the turbidity standard for Hawaiian streams. As such, it is likely that the current Hawaii standards will be found to be unachievable, even if all manmade pollutant inputs can somehow be controlled by implementation of TMDLs (an unrealistic proposition with potentially devastating economic ramifications for any land user).

In comparison to Hawaii's standard, many states have far more realistic turbidity standards that take into account both the natural background turbidity and a certain unavoidable level of erosion – and associated turbidity – inherent in any land use activities. Alaska; Idaho, Minnesota, Montana, New Hampshire, Oregon, Washington, and West Virginia all incorporate natural background levels into their turbidity standards. In addition, many states incorporate a provision analogous to that in HAR Section 11-54-4(c) (applicable to Hawaii's narrative "turbidity standard") into their numerical turbidity standards to clarify that implementation of Best Management Practices to control erosion on land meets the water quality standard for turbidity regardless of the actual measure turbidity.

As a result of Hawaii's unrealistically low turbidity standard, many streams are currently listed as impaired, and many more will undoubtedly be listed as more data is collected, based on turbidity data that is not necessarily indicative of a water quality problem. A&B believes strongly that a review and revision of the State's numerical standard for turbidity should be undertaken in order to prevent the continued listing of streams for turbidity levels that exceed the current standard but are in fact not indicative of actual water quality impairment.

7. In addition to the foregoing comments, A&B suggests the following specific revisions to the States 2004 List of Impaired Waters:

- Waipio Stream (Maui) should not be listed as impaired for turbidity, based on a poorly sited sampling location and unrepresentative data.
- Maliko Gulch (Maui) should be delisted, based on the limited data used in the delisting decision.

- All streams currently listed as impaired based solely on visual assessments completed prior to the 1998 listing decisions should be delisted, based on deficiencies in the data supporting the original listing and/or on new data that contradicts the original listing decision.
- All streams currently listed as impaired based on evaluation of combined (wet and dry season) turbidity data should be reevaluated to determine whether wet season data supports listing for wet season turbidity and dry season data supports listing for dry season turbidity. Streams for which listing is thereby not supported should be delisted until adequate data is collected to substantiate a finding of impairment.
- If not delisted in entirety, the listing of Hakalau Stream (Hawaii) for turbidity should be deleted, since the 1998 visual assessment on which this listing is based is contradicted by a 2002 assessment.
- The listing for Honolii Stream (Hawaii) indicates that the stream is listed for turbidity (dry) based on a numeric assessment. In reality, available numeric data for this stream shows no exceedance of the standard.
- The listing of Kaieie Stream (Hawaii) for nutrients should be deleted, since the 1998 visual assessment on which this listing is based is contradicted by a 2002 assessment.
- If not delisted, the listing for Wailoa/Waipio Stream (Hawaii) should be corrected to reflect data presented in Table la (i.e., exceedance of the wet season, not dry season, nitrate/nitrite standard).
- If not delisted, the listing for Waihee Stream (Maui) should be corrected to reflect data presented in Table la and lb (i.e., there is no numerical data cited supporting listing of this stream for turbidity).

A&B appreciates the opportunity to provide comments on the proposed list of impaired waters, and would welcome the opportunity to discuss any of our comments with DOH-EPO staff.

Sincerely,

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